

10/506994

What is claimed is:

1. A sheet extrudate with at least one surface which has self-cleaning properties
- 5 wherein
the synthetic polymer surface of the sheet extrudate (X) has at least one securely anchored layer of microparticles (P) which have hydrophobic properties and have from primary particles combined to give
- 10 agglomerates or aggregates whose size is from 0.2 to 100 μm , which form elevations having an average height of from 20 nm to 25 μm and an average separation of from 20 nm to 25 μm , where the microparticles (P) have been directly anchored within the synthetic polymer
- 15 surface (X) and have not been linked via a carrier material.
2. The sheet extrudate as claimed in claim 1, wherein
- 20 the elevations have an average height of from 50 nm to 4 μm and/or an average separation of from 50 nm to 4 μm .
3. The sheet extrudate as claimed in claim 1 or 2,
- 25 wherein
the microparticles have been selected from particles of silicates, minerals, metal oxides, metal powders, silicas, pigments, and polymers.
- 30 4. The sheet extrudate as claimed in any of claims 1 to 3, wherein
the microparticles have been selected from particles of fumed silicas, precipitated silicas, aluminum oxide,
- 35 mixed oxides, doped silicates, titanium dioxides, and pulverulent polymers.

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5. The sheet extrudate as claimed in claim 4,
wherein
the microparticles are hydrophobicized fumed silicas.

5 6. The sheet extrudate as claimed in any of claims 1
to 5,
wherein

the sheet extrudate itself comprises a material
selected from polycarbonates, polyoxymethylenes,
10 polyacrylates, polymethacrylates, polyamides, polyvinyl
chloride, polyethylenes, polypropylenes, aliphatic
linear or branched polyalkenes, cyclic polyalkenes,
polystyrenes, polyesters, polyacrylonitrile,
polyalkylene terephthalates, and polyvinylidene
15 fluoride, or comprises other polymers from
polyisobutene, poly-4-methyl-1-pentene, and
polynorbornene, in the form of homo- or copolymer, or
else comprises a mixture of these.

20 7. The sheet extrudate as claimed in any of claims 1
to 6,
wherein
the microparticles have been anchored with from 10 to
90% of their average particle diameter within the
25 surface.

8. A process for producing sheet extrudates as
claimed in any of claims 1 to 7 with at least one
surface which has self-cleaning properties and has
30 elevations formed by microparticles,
which comprises
impressing microparticles which have hydrophobic
properties and have combined from primary particles to
give agglomerates or aggregates whose size is from 0.2
35 to 100 μm , by means of a roll, into the surface of the
melt of a sheet extrudate, where this melt has not yet
solidified, and where more than 50% of the

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microparticles are impressed only to the extent of 90% of their diameter into the surface of the sheet extrudate.

- 5 9. The process as claimed in claim 8,
 wherein
 the sheet extrudate comprises a polymer based on
 polycarbonates, on polyoxymethylenes, on polyacrylates,
 on polymethacrylates, on polyamides, on polyvinyl
10 chloride, on polyethylenes, on polypropylenes, on
 aliphatic linear or branched polyalkenes, on cyclic
 polyalkenes, on polystyrenes, on polyesters, on
 polyacrylonitrile, or on polyalkylene terephthalates,
 or on polyvinylidene fluoride, or comprises other
15 polymers from polyisobutene, poly-4-methyl-1-pentene,
 and polynorbornene, in the form of homo- or copolymer,
 or else comprises a mixture of these.
10. The process as claimed in claim 8 or 9,
20 wherein
 the microparticles are impressed into the surface of
 the sheet extrudate by means of a roll for smoothing
 the sheet extrudate.
- 25 11. The process as claimed in any of claims 8 to 10,
 wherein,
 prior to impression into the sheet extrudate, the
 microparticles are applied to the surface of the roll
 used to impress the microparticles.
- 30 12. The process as claimed in claim 11,
 wherein
 the microparticles are sprayed onto the roll.
- 35 13. The process as claimed in at least one of claims 8
 to 12,
 wherein

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the roll has a temperature of from 20 to 150°C.

14. The process as claimed in at least one of claims 8 to 13,

5 wherein

use is made of at least two rolls, and hydrophobic microparticles are impressed into the surface of the sheet extrudate on two sides of the sheet extrudate.

10 15. The process as claimed in at least one of claims 8 to 14,

wherein

use is made of microparticles selected from silicates, minerals, metal oxides, metal powders, silicas,
15 pigments, and polymers.

16. The process as claimed in claim 15,
wherein

microparticles composed of hydrophobicized fumed
20 silicas are used.

17. A film with a surface which has self-cleaning properties and has surface structures with elevations, the production process being as claimed in any of
25 claims 8 to 16.

18. A sheet with a surface which has self-cleaning properties and has surface structures with elevations, the production process being as claimed in any of
30 claims 8 to 16.